

## CLAIMS

1. A thermoplastic polyurethane comprising segments A formed of a high molecular weight diol, segments B formed of at least one low molecular weight diol selected from  
5 1,4-bis(hydroxyethoxy)benzene and 1,3-propanediol, and segments C formed of a polyisocyanate, said segments A, B and C being bonded together in a linear form by urethane bonds, said segments B accounting for 1 to 30 wt.% in said thermoplastic polyurethane.
- 10 2. A thermoplastic polyurethane according to claim 1, further comprising segments D formed of a low molecular weight diol other than 1,4-bis(hydroxyethoxy)benzene or 1,3-propanediol.
- 15 3. A thermoplastic polyurethane according to claim 1, wherein said segments A each comprises a segment E formed of a polysiloxane diol or modified polysiloxane diol.
- 20 4. A thermoplastic polyurethane according to claim 1, wherein said high molecular weight diol is at least one diol having a number average molecular weight of from 600 to 4,000 and selected from the group consisting of polytetramethylene ether glycol, polybutylene adipate diol, polycarbonate diols and polysiloxane diols, said low molecular weight diol is 1,4-bis(hydroxyethoxy)benzene, said polyisocyanate is 4,4'-diphenylmethane diisocyanate, and said high molecular  
25 weight diol, said low molecular weight diol and said

polyisocyanate are used in proportions of 100 parts by weight, from 10 to 120 parts by weight and from 20 to 170 parts by weight, respectively.

5        5. A thermoplastic polyurethane according to claim 1, wherein said high molecular weight diol is polytetramethylene ether glycol having a number average molecular weight of from 1,000 to 2,000, said low molecular weight diol is 1,4-bis(hydroxyethoxy)benzene, said polyisocyanate is 4,4'-diphenylmethane diisocyanate, and said high molecular weight diol, said low molecular weight diol and said 10 polyisocyanate are used in proportions of 100 parts by weight, from 11 to 42 parts by weight and from 39 to 76 parts by weight, respectively.

15        6. A thermoplastic polyurethane according to claim 1, wherein said high molecular weight diol is polytetramethylene ether glycol having a number average molecular weight of from 800 to 1,200, said low molecular weight diol is 1,4-bis(hydroxyethoxy)benzene, said polyisocyanate is 4,4'-diphenylmethane diisocyanate, and said high molecular weight diol, said low molecular weight diol and said 20 polyisocyanate are used in proportions of 100 parts by weight, from 20 to 30 parts by weight and from 50 to 60 parts by weight, respectively.

25        7. A thermoplastic polyurethane according to claim 1, which has an impact resilience at 23°C of from 50 to 90%.

8. A thermoplastic polyurethane according to claim 1, which has an impact resilience at 0°C as much as at least 0.6 times of its impact resilience at 23°C.

5 9. A molding composition comprising as a polymer component a thermoplastic polyurethane according to any one of claims 1-8.

10. A thermoplastic polyurethane according to any one of claims 1-8, which is a cover material for golf balls.

( 11. A molding composition according to claim 9, which  
10 is a cover material for golf balls.